

WHAT IS CLAIMED IS:

1. A method of fabricating a liquid crystal display device, comprising:

forming a first orientation film on a first substrate;

forming a second orientation film on a second substrate;

spacing the first and second substrates apart by a gap;

forming a ferroelectric liquid crystal layer between the first and second substrates, the ferroelectric liquid crystal layer having an additive;

aligning the ferroelectric liquid crystal layer around a phase transition temperature of a SmC* phase; and

forming polymer networks in the ferroelectric liquid crystal layer by polymerizing the additives.
2. A method of fabricating a liquid crystal display device according to claim 1, wherein the additive includes an acrylate compound.
3. A method of fabricating a liquid crystal display device according to claim 1, wherein a weight % of the additive in the ferroelectric liquid crystal layer is between 1 and 3%.

4. A method of fabricating a liquid crystal display device according to claim 1, wherein the polymer networks are formed by exposing the ferroelectric liquid crystal layer to light.
5. A method of fabricating a liquid crystal display device according to claim 4, wherein the exposing light is ultraviolet.
6. A method of fabricating a liquid crystal display device according to claim 5, wherein the energy of the ultraviolet is between 40 and 200nJ/cm².
7. A method of fabricating a liquid crystal display device according to claim 5, wherein the power of the ultraviolet is between 1 and 5 mW/cm².
8. A method of fabricating a liquid crystal display device according to claim 1, wherein the polymer networks are formed along molecule layer boundaries of the ferroelectric liquid crystal layer.
9. A method of fabricating a liquid crystal display device according to claim 1, wherein the polymer networks are formed across molecule layer boundaries of the ferroelectric liquid crystal layer.

10. A method of fabricating a liquid crystal display device according to claim 1, wherein the phase transition temperature includes those from the SmA phase to the SmC* phase.
11. A method of fabricating a liquid crystal display device according to claim 1, wherein the phase transition temperature includes those from the N* phase to the SmC* phase.
12. A method of fabricating a liquid crystal display device according to claim 1, wherein the electric field is a direct current electric field.
13. A liquid crystal display device, comprising:
 - a first orientation film on a first substrate;
 - a second substrate spaced apart from said first substrate by a gap;
 - a second orientation film on the second substrate; and
 - a ferroelectric liquid crystal in the gap, wherein the ferroelectric liquid crystal layer includes a polymer network.

14. A liquid crystal device according to claim 13, wherein the polymer network is a polymerized additive.
15. A liquid crystal device according to claim 14, wherein the additive includes an acrylate compound.
16. A liquid crystal device according to claim 14, wherein the additive is between 1 and 3% by weight of the ferroelectric liquid crystal layer.
17. A liquid crystal device according to claim 13, wherein the polymer network is along molecule layer boundaries of the ferroelectric liquid crystal layer.
18. A liquid crystal device according to claim 13, wherein the polymer network is across molecule layer boundaries of the ferroelectric liquid crystal layer.
19. A liquid crystal device according to claim 13, further comprising a backlight.
20. A liquid crystal device according to claim 13, further comprising a thin film transistor.

21. A liquid crystal device according to claim 13, wherein the first substrate is transparent.
22. A liquid crystal device according to claim 21, further comprising a pixel electrode on the first substrate.
23. A liquid crystal device according to claim 13, further comprising a color filter on the second substrate.